

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in this application.

Listing of Claims:

1-43 (Canceled)

44. (New) A process of preparing a branched homopropylene composition comprising: contacting a polymerization mixture that comprises propylene monomers with a metallocene catalyst compound having at least two indenyl rings or derivative of indenyl rings, wherein each ring is substituted at the 2 and 4 positions, activated with a non-coordinating anion, under temperature and pressure conditions below the melting point of the propylene polymer and where:

a) the temperature is at or above the critical temperature for the reaction medium, and the pressure is at least 500 kPa above the critical pressure of the reaction medium; or

b) the temperature is 1°C or more above the critical temperature for the reaction medium, and the pressure is at or above the critical pressure of the reaction medium; or

c) the temperature is 1°C or more above the critical temperature for the reaction medium, and the pressure is at least 500 kPa above the critical pressure of the reaction medium, and

conducting polymerization of the propylene monomers for a time sufficient to form the branched homopropylene composition having a heat of fusion of 70 J/g, a T_m of 145°C or more and a branching index (g') of 0.97 or less.

45. (New) The process of claim 44 wherein the temperature is 2°C or more above the critical temperature for the reaction medium.

46. (Previously Presented) The process of claim 44 wherein the temperature is between 94 and 160°C.

47. (New) The process of claim 44 wherein the pressure is 1000 kPa or more above the critical pressure for the reaction medium.

48. (New) The process of claim 44 wherein the pressure is between 5.0 and 9 MPa.

49. (New) The process of claim 44 wherein the temperature is between 94 and 130°C and the pressure is between 5.0 and 7 MPa.

50. (New) The process of claim 44 wherein solvent is present at 0 to 15 vol %.

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

51. (New) The process of claim 44 wherein the comonomer comprises butene, hexene and/or octene.

52. (New) The process of claim 44 wherein the comonomer comprises from 0.5 to 5 mole % ethylene.

53. (New) The process of claim 44 where the metallocene catalyst compound is represented by the formula: $L_z(Cp)_2M^mX_n$ where: each Cp is independently a substituted indenyl ring wherein each ring is substituted at the 2 and 4 positions;

z is 0 or 1;

L is a bridging group connecting Cp to Cp, M is a Group 4, 5, or 6 transition metal;

m is 3, 4, 5 or 6;

X is a halogen or a substituted or unsubstituted hydrocarbyl group, a substituted or unsubstituted hydrocarboxy group, or a substituted or unsubstituted heteroatom containing group; and

n is m minus 2.

54. (New) The process of claim 53 wherein z is 1, L is represented by the formula: R_qSi -where each R is, independently, a substituted or unsubstituted C_1 to C_{20} hydrocarbyl group and q is 1, 2, 3 or 4; and both Cp groups are indenyl rings substituted at the 2 and 4 positions.

55. (New) The process of any of claims 44 to 52 wherein the metallocene catalyst compound comprises one or more of:

dimethylsiladiyl(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ hafnium dichloride;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

dimethylsiladiyl(2-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dichloride;
9-silafluorendiyl(2-methyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dichloride;
9-silafluorendiyl(2-ethyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dichloride;
9-silafluorendiyl(2-*n*-propyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dichloride;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dichloride;
9-silafluorendiyl(2-*n*-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dichloride;
9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dichloride;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dichloride;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dichloride;
9-silafluorendiyl(2-methyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dichloride;
9-silafluorendiyl(2-ethyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dichloride;
9-silafluorendiyl(2-*n*-propyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dichloride;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dichloride;
9-silafluorendiyl(2-*n*-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dichloride;
9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dichloride;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dichloride;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dichloride;
dimethylsiladiyl(2-methyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dimethyl;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dimethyl;
dimethylsiladiyl(2-*n*-propyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dimethyl;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dimethyl;
dimethylsiladiyl(2-*n*-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dimethyl;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dimethyl;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dimethyl;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂zirconium dimethyl;
dimethylsiladiyl(2-methyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dimethyl;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dimethyl;
dimethylsiladiyl(2-*n*-propyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dimethyl;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dimethyl;
dimethylsiladiyl(2-*n*-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dimethyl;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dimethyl;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-*t*butylphenyl] indenyl)₂hafnium dimethyl;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂hafnium dimethyl;
9-silafluorendiyl(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium 9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂hafnium dimethyl;
9-silafluorendiyl(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂hafnium dimethyl;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂hafnium dimethyl;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂hafnium dimethyl;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂hafnium dimethyl;
9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂hafnium dimethyl;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂hafnium dimethyl;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂hafnium dimethyl;
dimethylsiladiyl(2-methyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-methyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂hafnium dichloride;
dimethylsiladiyl(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂hafnium dichloride;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

dimethylsiladiyl(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂hafnium dichloride;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂hafnium
dichloride;
dimethylsiladiyl(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂hafnium dichloride;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂hafnium dichloride;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂hafnium dichloride;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂hafnium dichloride;
9-silafluorendiyl(2-methyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
dimethylsiladiyl(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂hafnium dichloride;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride
9-silafluorendiyl(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
9-silafluorendiyl(2-methyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium
dichloride;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium
dichloride;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium
dichloride;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium
dichloride;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

dimethylsiladiyl(2-methyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dimethyl;

dimethylsiladiyl(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dimethyl;

dimethylsiladiyl(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dimethyl;

dimethylsiladiyl(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dimethyl;

dimethylsiladiyl(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dimethyl;

dimethylsiladiyl(2-methyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-methyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dimethyl;

9-silafluorendiyl(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dimethyl;

9-silafluorendiyl(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dimethyl;

9-silafluorendiyl(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dimethyl;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

9-silafluorendiyl(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

9-silafluorendiyl(2-methyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;

9-silafluorendiyl(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;

9-silafluorendiyl(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;

9-silafluorendiyl(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium

dimethyl;

9-silafluorendiyl(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;

9-silafluorendiyl(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;

9-silafluorendiyl(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;

9-silafluorendiyl(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ hafnium dimethyl;

dimethylsiladiyl(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylsiladiyl(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;

dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;

dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;

dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;

dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;

dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;

dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;

9-silafluorendiyl(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

9-silafluorendiyl(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-isobutyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
dimethylsiladiyl(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
9-silafluorendiyl(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;
9-silafluorendiyl(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
dimethylsiladiyl(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylsiladiyl(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
9-silafluorendiyl(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dichloride;
9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl 9-
silafluorendiyl(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ hafnium dimethyl;
dimethylsiladiyl(2-methyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-*n*-propyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-*n*-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-*n*-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-*n*-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;
dimethylsiladiyl(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylsiladiyl(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-*n*-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-iso-propyl-4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-*n*-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-*n*-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-*n*-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

9-silafluorendiyl(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-tert-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

dimethylamidoborane(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

dimethylamidoborane(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

dimethylamidoborane(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-tert-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

dimethylamidoborane(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

dimethylamidoborane(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

dimethylamidoborane(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

dimethylamidoborane(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

dimethylamidoborane(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

dimethylamidoborane(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

dimethylamidoborane(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

dimethylamidoborane(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

dimethylamidoborane(2-tert-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

dimethylamidoborane(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

dimethylamidoborane(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium;
dimethyl dimethylamidoborane(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
dimethylamidoborane(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
diisopropylamidoborane(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

diisopropylamidoborane(2-ethyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ zirconium dichloride;
diisopropylamidoborane(2-*n*-propyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ zirconium dichloride;
diisopropylamidoborane(2-iso-propyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-*n*-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ zirconium dichloride;
diisopropylamidoborane(2-iso-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ zirconium dichloride;
diisopropylamidoborane(2-sec-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ zirconium dichloride;
diisopropylamidoborane(2-tert-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ zirconium dichloride;
diisopropylamidoborane(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-*n*-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-*n*-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;
diisopropylamidoborane(2-*n*-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-*n*-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium
dichloride;
diisopropylamidoborane(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium
dichloride;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

diisopropylamidoborane(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

diisopropylamidoborane(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

diisopropylamidoborane(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

diisopropylamidoborane(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

diisopropylamidoborane(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

diisopropylamidoborane(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

diisopropylamidoborane(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

diisopropylamidoborane(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

diisopropylamidoborane(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

diisopropylamidoborane(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

diisopropylamidoborane(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

diisopropylamidoborane(2-tert-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-*n*-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-*n*-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-*n*-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-*n*-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

diisopropylamidoborane(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

diisopropylamidoborane(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-tert-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

diisopropylamidoborane(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;

diisopropylamidoborane(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dichloride;

bis(trimethylsilyl)amidoborane(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η^4 -1,4-diphenyl-1,3-butadiene;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-n-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-n-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-n-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-n-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;
bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

Appl. No. 10/667,586
 Atty. Docket No.: 2002B170/2
 Amdt. dated April 16, 2007
 Response to OA of January 16, 2007

bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ η⁴-1,4-diphenyl-1,3-butadiene;

bis(trimethylsilyl)amidoborane(2-methyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-n-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-n-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-di-tbutylphenyl] indenyl)₂ zirconium dimethyl;

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-di-*t*-butylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-*n*-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-*n*-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-bis-trifluoromethylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-*n*-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-*n*-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

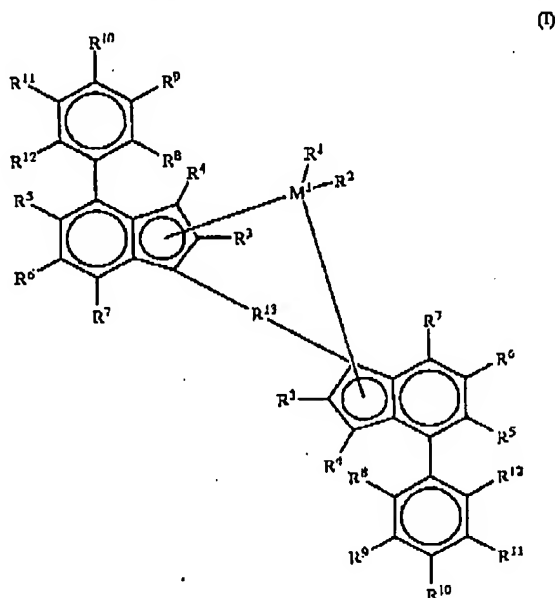
bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-di-iso-propylphenyl] indenyl)₂ zirconium dimethyl;

bis(trimethylsilyl)amidoborane(2-methyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;

Appl. No. 10/667,586
 Atty. Docket No.: 2002B170/2
 Amdt. dated April 16, 2007
 Response to OA of January 16, 2007

bis(trimethylsilyl)amidoborane(2-ethyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
 bis(trimethylsilyl)amidoborane(2-n-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
 bis(trimethylsilyl)amidoborane(2-iso-propyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
 bis(trimethylsilyl)amidoborane(2-n-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
 bis(trimethylsilyl)amidoborane(2-iso-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
 bis(trimethylsilyl)amidoborane(2-sec-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl;
 and bis(trimethylsilyl)amidoborane(2-tert-butyl, 4-[3',5'-di-phenylphenyl] indenyl)₂ zirconium dimethyl.

56. (New) The process of claim 44 where the metallocene compound is represented by the formula:



wherein: M¹ is selected from the group consisting of titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum and tungsten;

Appl. No. 10/667,586
 Atty. Docket No.: 2002B170/2
 Amdt. dated April 16, 2007
 Response to OA of January 16, 2007

R^1 and R^2 are identical or different, and are one of a hydrogen atom, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a C_6 - C_{10} aryl group, a C_6 - C_{10} aryloxy group, a C_2 - C_{10} alkenyl group, a C_2 - C_{40} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_7 - C_{40} alkylaryl group, a C_9 - C_{40} arylalkenyl group, an OH group or a halogen atom;

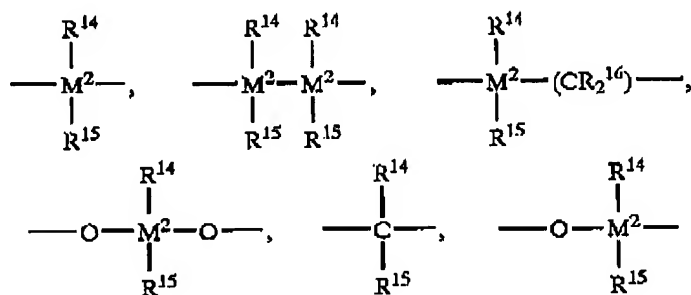
R^1 and R^2 may also be joined together to form an alkanediyl group or a conjugated C_{4-40} diene ligand which is coordinated to M^1 in a metallocyclopentene fashion;

R^1 and R^2 may also be identical or different conjugated dienes, optionally substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl groups or hydrocarbyl, tri(hydrocarbyl)silylhydrocarbyl groups, said dienes having up to 30 atoms not counting hydrogen and forming a π complex with M, examples include 1,4-diphenyl-1,3-butadiene, 1,3-pentadiene, 2-methyl-1,3-pentadiene, 2,4-hexadiene, 1-phenyl-1,3-pentadiene, 1,4-dibenzyl-1,3-butadiene, 1,4-ditolyl-1,3-butadiene, 1,4-bis(trimethylsilyl)-1,3-butadiene, and 1,4-dinaphthyl-1,3-butadiene;

each R^3 is identical or different from the other R^3 and is each a halogen atom, a C_1 - C_{10} alkyl group which may be halogenated, a C_6 - C_{10} aryl group which may be halogenated, a C_2 - C_{10} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_7 - C_{40} alkylaryl group, a C_9 - C_{40} arylalkenyl group, a $--NR'^2$, $--SR'$, $--OR'$, $--OSiR'^3$ or $--PR'^2$ radical, wherein R' is one of a halogen atom, a C_1 - C_{10} alkyl group, or a C_6 - C_{10} aryl group;

R^4 to R^{12} are identical or different and are hydrogen, or are as defined for R^3 or two or more adjacent radicals R^5 to R^7 together with the atoms connecting them form one or more rings;

R^{13} is:

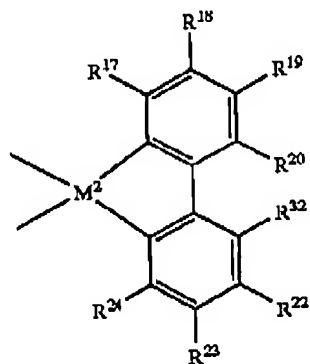


$--B(R^{14})--$, $--Al(R^{14})--$, $--Ge--$, $--Sn--$, $--O--$, $--S--$, $--SO--$, $--SO_2--$, $--N(R^{14})--$, $--CO--$, $--P(R^{14})--$, or $--P(O)(R^{14})--$;

wherein: R^{14} , R^{15} and R^{16} are identical or different and are a hydrogen atom, a halogen atom, a C_1 - C_{20} branched or linear alkyl group, a C_1 - C_{20} fluoroalkyl or silaalkyl group, a C_6 - C_{30} aryl group, a C_6 - C_{30} fluoroaryl group, a C_1 - C_{20} alkoxy group, a C_2 - C_{20} alkenyl group, a C_7 - C_{40} arylalkyl group, a

Appl. No. 10/667,586
 Atty. Docket No.: 2002B170/2
 Amdt. dated April 16, 2007
 Response to OA of January 16, 2007

C₈-C₄₀ arylalkenyl group, a C₇-C₄₀ alkylaryl group, or R¹⁴ and R¹⁵, together with the atoms binding them, form a cyclic ring; or, R¹³ is represented by the formula;



wherein: R¹⁷ to R²⁴ are as defined for R¹ and R², or two or more adjacent radicals R¹⁷ to R²⁴, including R²⁰ and R²¹, together with the atoms connecting them form one or more rings; and M² is one or more carbons, silicon, germanium or tin.

57. (New) The process of claim 1 where the reaction medium comprises comonomer selected from the group consisting of ethylene, butene, hexene, octene, and decene.

58. (New) The process of claim 1 where the metallocene catalyst compound having at least two indenyl rings or derivative of indenyl rings, wherein each ring is substituted at the 2 and 4 positions and is a substituted or unsubstituted silyl bridged bis-indenyl metallocene.

59. (New) The process of claim 44 where the metallocene catalyst compound is combined with propylene in an amount of up to 1.0 mole % hydrogen in the reactor.

60. (New) The process of claim 44 wherein the activator comprises an ionizing activator.

61. (New) The process of claim 44 wherein the activator comprises alumoxane.

62. (New) The process of claim 44 wherein the activator comprises a non-coordinating anion.

63. (New) The process of claim 44 wherein the activator is selected from the group consisting of:

trimethylammonium tetraphenylborate,
 triethylammonium tetraphenylborate,
 tripropylammonium tetraphenylborate,
 tri(n-butyl)ammonium tetraphenylborate,

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

tri(tert-butyl)ammonium tetraphenylborate,
N,N-dimethylanilinium tetraphenylborate,
N,N-diethylanilinium tetraphenylborate,
N,N-dimethyl-(2,4,6-trimethylanilinium)tetraphenylborate,
trimethylammonium tetrakis(pentafluorophenyl)borate,
triethylammonium tetrakis(pentafluorophenyl)borate,
tripropylammonium tetrakis(pentafluorophenyl)borate,
tri(n-butyl)ammonium tetrakis(pentafluorophenyl)borate,
tri(sec-butyl)ammonium tetrakis(pentafluorophenyl)borate,
N,N-dimethylanilinium tetrakis(pentafluorophenyl)borate,
N,N-diethylanilinium tetrakis(pentafluorophenyl)borate,
N,N-dimethyl-(2,4,6-trimethylanilinium)tetrakis(pentafluorophenyl)borate,
trimethylammonium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
triethylammonium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
tripropylammonium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
tri(n-butyl)ammonium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
dimethyl(tert-butyl)ammonium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
N,N-dimethylanilinium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
N,N-diethylanilinium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
N,N-dimethyl-(2,4,6-trimethylanilinium)tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
trimethylammonium tetrakis(perfluoronaphthyl)borate,
triethylammonium tetrakis(perfluoronaphthyl)borate,
tripropylammonium tetrakis(perfluoronaphthyl)borate,
tri(n-butyl)ammonium tetrakis(perfluoronaphthyl)borate,
tri(tert-butyl)ammonium tetrakis(perfluoronaphthyl)borate,
N,N-dimethylanilinium tetrakis(perfluoronaphthyl)borate,
N,N-diethylanilinium tetrakis(perfluoronaphthyl)borate,
N,N-dimethyl-(2,4,6-trimethylanilinium)tetrakis(perfluoronaphthyl)borate,
trimethylammonium tetrakis(perfluorobiphenyl)borate,
triethylammonium tetrakis(perfluorobiphenyl)borate,
tripropylammonium tetrakis(perfluorobiphenyl)borate,
tri(n-butyl)ammonium tetrakis(perfluorobiphenyl)borate,

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

tri(tert-butyl)ammonium tetrakis(perfluorobiphenyl)borate,
N,N-dimethylanilinium tetrakis(perfluorobiphenyl)borate,
N,N-diethylanilinium tetrakis(perfluorobiphenyl)borate,
N,N-dimethyl-(2,4,6-trimethylanilinium)tetrakis(perfluorobiphenyl)borate,
trimethylammonium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
triethylammonium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
tripropylammonium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
tri(n-butyl)ammonium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
tri(tert-butyl)ammonium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
N,N-dimethylanilinium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
N,N-diethylanilinium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
N,N-dimethyl-(2,4,6-trimethylanilinium)tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
di-(iso-propyl)ammonium tetrakis(pentafluorophenyl)borate,
dicyclohexylammonium tetrakis(pentafluorophenyl)borate;
tri(o-tolyl)phosphonium tetrakis(pentafluorophenyl)borate,
tri(2,6-dimethylphenyl)phosphonium tetrakis(pentafluorophenyl)borate,
tropillium tetraphenylborate,
triphenylcarbenium tetraphenylborate,
triphenylphosphonium tetraphenylborate,
triethylsilylium tetraphenylborate,
benzene(diazonium)tetraphenylborate,
tropillium tetrakis(pentafluorophenyl)borate,
triphenylcarbenium tetrakis(pentafluorophenyl)borate,
triphenylphosphonium tetrakis(pentafluorophenyl)borate,
triethylsilylium tetrakis(pentafluorophenyl)borate,
benzene(diazonium) tetrakis(pentafluorophenyl)borate,
tropillium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
triphenylcarbenium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
triphenylphosphonium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
triethylsilylium tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
benzene(diazonium)tetrakis-(2,3,4,6-tetrafluorophenyl)borate,
tropillium tetrakis(perfluoronaphthyl)borate,

Appl. No. 10/667,586
Atty. Docket No.: 2002B170/2
Amdt. dated April 16, 2007
Response to OA of January 16, 2007

triphenylcarbenium tetrakis(perfluoronaphthyl)borate,
triphenylphosphonium tetrakis(perfluoronaphthyl)borate,
triethylsilylium tetrakis(perfluoronaphthyl)borate,
benzene(diazonium) tetrakis(perfluoronaphthyl)borate,
tropillium tetrakis(perfluorobiphenyl)borate,
triphenylcarbenium tetrakis(perfluorobiphenyl)borate,
triphenylphosphonium tetrakis(perfluorobiphenyl)borate,
triethylsilylium tetrakis(perfluorobiphenyl)borate,
benzene(diazonium) tetrakis(perfluorobiphenyl)borate,
tropillium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
triphenylcarbenium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
triphenylphosphonium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate,
triethylsilylium tetrakis(3,5-bis(trifluoromethyl)phenyl)borate, and
benzene(diazonium)tetrakis(3,5-bis(trifluoromethyl)phenyl)borate.

64. (New) The process of claim 44 wherein the activator comprises one or more of:
dimethylanilinium tetrakis(perfluorophenyl)boron, tri(n-butyl)ammonium
tetrakis(pentafluorophenyl)boron, N,N-dimethylanilinium tetra(perfluorophenyl)borate and/or
triphenylcarbenium tetra(perfluorophenyl)borate.
65. (New) The process of claim 44 where the catalyst compound, the activator or both are supported.
66. (New) The process of claim 44 wherein the support comprises silica.
67. (New) The process of claim 44 wherein the process occurs in an autoclave reactor.
68. (New) The process of claim 44 wherein the process occurs in a tubular reactor.
69. (New) The process of claim 44 wherein the process occurs in a loop reactor.
70. (New) The process of claim 44 wherein the polymerization medium comprises at least two
phases.
71. (New) The process of claim 44 wherein the catalyst activity is at least 2597 grams of polymer
per gram of catalyst per hour.